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“पुराने को छोड़ नये के तरफ”

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IS 4102 (1983): Leather for shuttlecock caps [CHD 17:
Leather, Tanning Materials and Allied Products]



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Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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IS : 4102 - 1983

Indian Standard
SPECIFICATION FOR
LEATHER FOR SHUTTLECOCK CAPS
(*First Revision*)

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INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Indian Standard

SPECIFICATION FOR LEATHER FOR SHUTTLECOCK CAPS (*First Revision*)

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Indian Standard
SPECIFICATION FOR
LEATHER FOR SHUTTLECOCK CAPS
(*First Revision*)

0. FOREWORD

0.1 This Indian Standard (First Revision) was adopted by the Indian Standards Institution on 30 March 1983, after the draft finalized by the Leather Sectional Committee had been approved by the Chemical Division Council.

0.2 This standard was first published in 1967 at the request of the Sports Goods Sectional Committee. The standard is expected to assist the tanners to offer a suitable leather to the sports goods industry and to help the Sports Goods Export Promotion Council and various quality marking schemes of State Departments in selecting a material of choice, controlled by the conditions of national sports or the export market needs.

0.3 This standard has been revised, in light of the technological developments since the publication of its earlier version, and the availability of authentic test data on indigenous samples tested at the Central Leather Research Institute. In this revision, new parameters for physical requirements have been prescribed and the requirements for the characteristics of insoluble ash and hide substance have been deleted. IS : 5868-1969* has been referred suitably and the consequential changes have been carried out in this revised standard.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960†. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

*Methods for sampling of leather.

†Rules for rounding off numerical values (revised).

1. SCOPE

1.1 This standard prescribes the requirements, and methods of sampling and test for aluminium tanned sheepskin intended for shuttlecock caps.

2. TERMINOLOGY

2.1 For the purpose of this standard, the definitions given in IS : 1640-1960* shall apply.

3. REQUIREMENTS

3.1 Raw Material — The raw material shall be sheepskins.

3.2 Tanning — The material shall be dressed by alum tawing or tanned with basic aluminium salts.

3.3 Finishing — The material shall be fat-liquored by tawing or otherwise and the leather shall be finished in natural white colour with smooth grain.

3.4 The material shall be uniform in thickness within the specified limits of SI No. i) of Table 2.

3.5 Chemical Requirements — The material shall comply with the chemical requirements given in Table 1.

TABLE 1 CHEMICAL REQUIREMENTS FOR LEATHER FOR SHUTTLECOCK CAPS

SL No.	CHARACTERISTIC	REQUIREMENT	METHOD OF TEST, REF TO CL No. IN IS : 582-1970*
(1)	(2)	(3)	(4)
i)	Total ash, percent by mass, <i>Max</i>	10.0	LC : 3
ii)	Aluminium content (as Al_2O_3), percent by mass, <i>Min</i>	2.5	LC : 11
iii)	Solvent extractable substance, percent by mass	1.0 to 2.0	LC : 4
iv)	pH of water solubles, <i>Min</i>	3.5	LC : 18

NOTE — All requirements are to be calculated on zero percent volatile matter basis, except pH of water solubles. Volatile matter shall be determined as prescribed in LC : 1 of IS : 582-1970*.

$$1 \text{ kgf/cm}^2 = 98\,066.5 \text{ N/m}^2$$

*Methods of chemical testing of leather (*first revision*).

*Glossary of terms relating to hides, skins and leather.

3.6 Physical Requirements — The material shall comply with the physical requirements given in Table 2.

TABLE 2 PHYSICAL REQUIREMENTS FOR LEATHER FOR SHUTTLECOCK CAPS

SL No.	CHARACTERISTIC	REQUIREMENT	METHOD OF TEST, REF TO CL No. IN IS : 5914-1970*
(1)	(2)	(3)	(4)
i)	Thickness, mm	0.5 to 0.7	LP : 2
ii)	Tensile strength, MPa (Kg/ cm ²), <i>Min</i>	10.8 (110.0)	LP : 6
iii)	Elongation at break, percent <i>Max</i>	28	LP : 6
iv)	Water absorption, percent by mass, <i>Max</i>		
	a) in 30 minutes	350	LP : 12
	b) in 2 hours	450	LP : 12
	c) in 24 hours	500	LP : 12
v)	Double hole stitch tear strength, kg/cm, <i>Min</i>	45	LP : 8

1 kgf/cm² = 98 066.5 N/m² and 1MPa = 10⁶ N/m².

*Methods of physical testing of leather.

4. MARKING AND PACKING

4.1 Marking — The leather pieces or packages or both shall be marked with the area in decimetre square, name of the manufacturer, recognized trade-mark, if any, and month and year of manufacture.

4.1.1 The leather pieces or packages or both may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

4.2 Packing — The leather shall be packed as agreed to between the purchaser and the supplier.

5. SAMPLING AND CRITERIA FOR CONFORMITY

5.1 The scale of sampling and criteria for conformity shall be as prescribed in IS : 5868-1969*

*Method of sampling for leather.

INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

QUANTITY	UNIT	SYMBOL
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

QUANTITY	UNIT	SYMBOL
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

QUANTITY	UNIT	SYMBOL	DEFINITION
Force	newton	N	1 N = 1 kg.m/s ²
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m ²
Frequency	hertz	Hz	1 Hz = 1 c/s (s ⁻¹)
Electric conductance	siemens	S	1 S = 1 A/V
Electromotive force	volt	V	1 V = 1 W/A
Pressure, stress	pascal	Pa	1 Pa = 1 N/m ²

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